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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
AGGARWAL, YOGESH K	

ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 01/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/672,987	PINE, JOSHUA I.	
	Examiner	Art Unit	
	Yogesh K Aggarwal	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4-6,9,10,14,17-21 and 24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4-6,9,10,14,17-21 and 24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 September 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Arguments

1. Applicant's arguments, filed 07/30/2004, with respect to the rejection(s)of claim(s) 1-24 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 4 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Wilder et al. (US Patent # 5,262,871).

[Claim 4]

Wilder et al. teaches a selectable resolution image capture system (col. 5 line 65-col. 6 line 7) comprising an imager (figure 2, element 10) having a plurality of photocells that produce an analog electrical response to light exposure (col. 5 lines 25-31), a circuit (18) that converts the electrical responses of the plurality of photocells into digital signals (col. 1 line 14-20), the circuit having a full-resolution mode and a low-resolution mode (col. 6 lines 47-64), and an image processor (18) that operates the circuit and selects between the full-resolution and low-resolution modes of the circuit to capture an image where the circuit, in the low-resolution mode, combines the electrical responses of more than one element per column and more than one row at a time (e.g. P column conductors and Q row conductors) where P and Q may be

programmed to group comprising four contiguous photocells together and converts each group of combined electrical responses into a corresponding digital signal, to produce a low-resolution image (col. 6 lines 30-39).

[Claim 18]

This is a method claim corresponding to apparatus claim 4. Therefore it has been analyzed and rejected based upon apparatus claim 4.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 5, 14 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder et al. (US Patent # 5,262,871) in view of Palcic et al. (US Patent # 5,827,190).

[Claim 5]

Wilder et al. teaches a selectable resolution image capture system (col. 5 line 65-col. 6 line 7) comprising an imager (figure 2, element 10) having a plurality of photocells that produce an analog electrical response to light exposure (col. 5 lines 25-31), a circuit (18) that converts the electrical responses of the plurality of photocells into digital signals (col. 1 line 14-20), the circuit having a full-resolution mode and a low-resolution mode and an image processor (18) that operates the circuit and selects between the full-resolution and low-resolution modes of the circuit to capture an image (col. 5 line 66- col. 6 line 64) except the image processor detecting a low light condition, and if so, captures the image using the low-resolution mode of the circuit.

Wilder et al. does not explicitly teach detecting a low light condition, and if so, capturing the image using the low-resolution mode of the circuit. However Palcic et al. detects tissue fluorescence (read as detecting a lighting condition) and if a tissue image is at low florescent light conditions the light sensitivity can be increased to acquire low-resolution image (col. 4 lines 6-11). Therefore taking the combined teachings of Wilder and Palcic, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to incorporate detecting a low light condition, and if so, capturing the image using the low-resolution mode of the circuit as taught by Palcic into the multiple resolution circuit of Wilder. The benefit of doing so will increase the sensitivity of the image sensor as two or more pixels are combined to generate more light per pixel as taught in Palcic (col. 4 lines 8-11).

[Claim 14]

Wilder et al. teaches a method of capturing an image comprising selecting between a low-resolution and a high-resolution mode (col. 5 line 65-col. 6 line 7) comprising an imager (figure 2, element 10); exposing an array of photocells that produce electrical charges in response to light exposure (col. 5 lines 25-31), if the high-resolution mode is selected, then converting each electrical charge into a digital signal to produce a high-resolution image else (col. 1 lines 8-26), combines the electrical responses of more than one element per column and more than one row at a time (e.g. P column conductors and Q row conductors) where P and Q may be programmed to group comprising at least two photocells together by separating the array of photocells into discrete groups and converting each group of into a corresponding digital signal, to produce a low-resolution image (col. 6 lines 30-39) except detecting a low light condition, and if so, capturing the image using the low-resolution mode of the circuit. Wilder et al. does not explicitly

teach detecting a low light condition, and if so, capturing the image using the low-resolution mode of the circuit. However Palcic et al. detects tissue fluorescence (read as detecting a lighting condition) and if a tissue image is at low florescent light conditions the light sensitivity can be increased to acquire low-resolution image (col. 4 lines 6-11). Therefore taking the combined teachings of Wilder and Palcic, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to incorporate detecting a low light condition, and if so, capturing the image using the low-resolution mode of the circuit as taught by Palcic into the multiple resolution circuit of Wilder. The benefit of doing so will increase the sensitivity of the image sensor as two or more pixels are combined to generate more light per pixel as taught in Palcic (col. 4 lines 8-11).

[Claim 24]

Wilder et al. teaches a selectable resolution image capture system (col. 5 line 65-col. 6 line 7) comprising an imager (figure 2, element 10) having a plurality of photocells that produce an analog electrical response to light exposure (col. 5 lines 25-31), a high-resolution mode for converting each electrical charge produced by the plurality of photocells into corresponding digital signals to produce a full-resolution image (col. 1 lines 8-26), a low-resolution mode for combining the electrical responses of more than one element per column and more than one row at a time (e.g. P column conductors and Q row conductors) where P and Q may be programmed to groups of at least two photocells together and converting each group of combined electrical responses into a corresponding digital signal, to produce a low-resolution image (col. 6 lines 30-39) except means for detecting lighting conditions and selecting the low-resolution mode if the lighting conditions disfavor the high-resolution mode. Wilder et al. does not explicitly teach

detecting means for detecting lighting conditions and selecting the low-resolution mode if the lighting conditions disfavor the high-resolution mode. However Palcic et al. detects tissue fluorescence (read as detecting a lighting condition) and if a tissue image is at low florescent light conditions the light sensitivity can be increased to acquire low-resolution image (col. 4 lines 6-11). Therefore taking the combined teachings of Wilder and Palcic, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to incorporate detecting a low light condition, and if so, capturing the image using the low-resolution mode of the circuit as taught by Palcic into the multiple resolution circuit of Wilder. The benefit of doing so will increase the sensitivity of the image sensor as two or more pixels are combined to generate more light per pixel as taught in Palcic (col. 4 lines 8-11).

6. Claims 6 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder et al. (US Patent # 5,262,871) in view of Kuroiwa (US PG-PUB # 2001/0017658).

[Claim 6]

Wilder et al. teaches a selectable resolution image capture system (col. 5 line 65-col. 6 line 7) comprising an imager (figure 2, element 10) having a plurality of photocells that produce an analog electrical response to light exposure (col. 5 lines 25-31), a circuit (18) that converts the electrical responses of the plurality of photocells into digital signals (col. 1 line 14-20), the circuit having a full-resolution mode and a low-resolution mode and an image processor (18) that operates the circuit and selects between the full-resolution and low-resolution modes of the circuit to capture an image (col. 5 line 66- col. 6 line 64) except the image processor detecting a low power condition, and if so, captures the image using the low-resolution mode of the circuit. Wilder et al. does not explicitly teach detecting a low power condition, and if so, capturing the

image using the low-resolution mode of the circuit. However Official Notice is taken of the facts that if a low power condition is detected, part of the circuitry can be made off in order to reduce the power consumption thereby saving battery. Therefore taking the combined teachings of Wilder and Official Notice, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to incorporate detecting a low power condition, and if so, part of the circuitry can be made off in order to reduce the power consumption thereby saving battery. Wilder in view of Official Notice teach that if a low power condition is detected, part of the circuitry can be made off but does not explicitly teach that during such condition low resolution image can be detected. However Kuroiwa teaches that low resolution images may be taken (Paragraph 188 lines 27-30) Therefore taking the combined teachings of Wilder, Official Notice and Kuroiwa as a whole, it would have been obvious to one skilled in the art to incorporate an image processor which detects whether there is a low power condition, and if so, captures the image using the low-resolution mode of the circuit as taught by Official Notice and Kuroiwa into the multiple resolution circuit of Wilder. The benefit of doing so would save an excessive power to be consumed if low-resolution images are taken when low power condition is detected.

[Claim 17]

Wilder et al. teaches a method of capturing an image comprising selecting between a low-resolution and a high-resolution mode (col. 5 line 65-col. 6 line 7) comprising an imager (figure 2, element 10); exposing an array of photocells that produce electrical charges in response to light exposure (col. 5 lines 25-31), if the high-resolution mode is selected, then converting each electrical charge into a digital signal to produce a high-resolution image else (col. 1 lines 8-26), combines the electrical responses of more than one element per column and more than one row

at a time (e.g. P column conductors and Q row conductors) where P and Q may be programmed to group comprising at least two photocells together by separating the array of photocells into discrete groups and converting each group of into a corresponding digital signal, to produce a low-resolution image (col. 6 lines 30-39) except detecting a low power condition, and if so, captures the image using the low-resolution mode of the circuit. Wilder et al. does not explicitly teach detecting a low power condition, and if so, capturing the image using the low-resolution mode of the circuit. However Official Notice is taken of the facts that if a low power condition is detected, part of the circuitry can be made off in order to reduce the power consumption thereby saving battery. Therefore taking the combined teachings of Wilder and Official Notice, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to incorporate detecting a low power condition, and if so, part of the circuitry can be made off in order to reduce the power consumption thereby saving battery. Wilder in view of Official Notice teach that if a low power condition is detected, part of the circuitry can be made off but does not explicitly teach that during such condition low resolution image can be detected. However Kuroiwa teaches that low resolution images may be taken (Paragraph 188 lines 27-30) Therefore taking the combined teachings of Wilder, Official Notice and Kuroiwa as a whole, it would have been obvious to one skilled in the art to incorporate an image processor which detects whether there is a low power condition, and if so, captures the image using the low-resolution mode of the circuit as taught by Official Notice and Kuroiwa into the multiple resolution circuit of Wilder. The benefit of doing so would save an excessive power to be consumed if low-resolution images are taken when low power condition is detected.

7. Claims 9, 10 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder et al. (US Patent # 5,262,871) in view of Tse (US Patent # 5,477,345).

[Claim 9]

Wilder et al. teaches a selectable resolution image capture system (col. 5 line 65-col. 6 line 7) comprising an imager (figure 2, element 10) having a plurality of photocells that produce an analog electrical response to light exposure (col. 5 lines 25-31), a circuit (18) that converts the electrical responses of the plurality of photocells into digital signals (col. 1 line 14-20), the circuit having a full-resolution mode and a low-resolution mode and an image processor (18) that operates the circuit and selects between the full-resolution and low-resolution modes of the circuit to capture an image (col. 5 line 66- col. 6 line 64) except that the imager is a color imager having a plurality of red, green, and blue photocells producing electrical responses to red, green and blue light respectively. Wilder does not explicitly teach that the imager is a color imager having a plurality of red, green, and blue photocells producing electrical responses to red, green and blue light respectively. However Tse discloses a color sensor (Figures 2, 3 and 4) having a plurality of red, green, and blue photocells producing electrical responses to red, green and blue light respectively. Therefore taking the combined teachings of Wilder and Tse, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to incorporate a color sensor as taught by Tse into the multi-resolution system of Wilder to have a color image depicting an image that is more close to the actual scene.

[Claim 10]

In the combination of references, Tse discloses a low and high resolution color sensor wherein scanner sub-sampling (low resolution) is performed by averaging (summing) four green sensor

outputs covering a four pixel area and Wilder discloses that the electrical responses of the groups of four same colored photocells are combined together in a group into a corresponding digital signal to produce a low-resolution image (col. 1 lines 14-20, col. 6 lines 47-64).

[Claim 19]

Wilder et al. teaches a method of capturing an image comprising selecting between a low-resolution and a high-resolution mode (col. 5 line 65-col. 6 line 7) comprising an imager (figure 2, element 10); exposing an array of photocells that produce electrical charges in response to light exposure (col. 5 lines 25-31), if the high-resolution mode is selected, then converting each electrical charge into a digital signal to produce a high-resolution image else (col. 1 lines 8-26), combines the electrical responses of more than one element per column and more than one row at a time (e.g. P column conductors and Q row conductors) where P and Q may be programmed to group comprising at least two photocells together by separating the array of photocells into discrete groups and converting each group of into a corresponding digital signal, to produce a low-resolution image (col. 6 lines 30-39) except that the imager is a color imager having a plurality of red, green, and blue photocells producing electrical responses to red, green and blue light respectively. Wilder does not explicitly teach that the imager is a color imager having a plurality of red, green, and blue photocells producing electrical responses to red, green and blue light respectively. However Tse discloses a color sensor (Figures 2, 3 and 4) having a plurality of red, green, and blue photocells producing electrical responses to red, green and blue light respectively. Therefore taking the combined teachings of Wilder and Tse, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to

incorporate a color sensor as taught by Tse into the multi-resolution system of Wilder to have color image depicting an image that is more close to the actual scene.

8. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder (US Patent # 5,262,871), Tse (US Patent # 5,477,345) as applied to claim 19 and in further view of Lin et al. (US Patent # 6,642,962).

[Claim 20]

Wilder in view of Tse teaches the limitations of claim 19 but does not teach explicitly that the array of photocells are arranged in rows and columns with alternating patterns of red, green, red, green, and green blue, green, blue". However this limitation is well known in the art as evidenced by Lin (col. 2 lines 22-27 figure 2). Therefore taking the combined teachings of Wilder, Tse and Lin it would have been obvious to one skilled in the art at the time of the invention to have been motivated having an array of photocells are arranged in rows and columns with alternating patterns of red, green, red, green, and green blue, green, blue known as a Bayer pattern. Doing so allows us to have half of the pixels as green to which human eye is most sensitive as taught in Lin (col. 2 lines 28-33).

[Claim 21]

In the combination of references, Tse discloses a low and high-resolution color sensor wherein scanner sub-sampling (low resolution) is performed by averaging (summing) four green sensor outputs covering a four-pixel area.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K Aggarwal whose telephone number is (703) 305-0346. The examiner can normally be reached on M-F 9:00AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on (703) 308-9644. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YKA
December 15, 2004

TUAN HO
PRIMARY EXAMINER